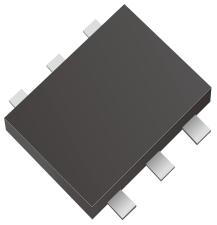
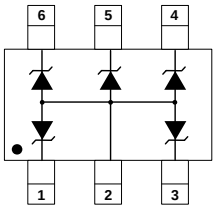
LTE56T05A05LC

Quad-direction ESD Protection Diode

Features





- Uni-directional ESD protection of five lines
- Low capacitance: 10pF(Typ)
- Low reverse stand−off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Excellent package:1.6mm×1.2mm×0.6mm
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2Level3ESD protection
- Lead free in comply with EU RoHS 2011/65/EU directives

Applications

- Computers and peripherals
- Audio and video equipment
- Subscriber Identity Module (SIM) card protection
- Cellular handsets and accessories
- Portable electronics
- Other electronics equipments communication systems

Ordering Information

Part Number	Marking	Shipping	Reel
LTE56T05A05LC-TR3	L2	3000PCS Tape&Reel	7 inchs

Maximum Ratings (Tamb=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	Air Model	V_{ESD} (1)	±8	kV
	Contact Model		±8	
JESD22-A114-B ESD Voltage	Per Human Body Model		±8	
ESD Voltage	Machine Model		±0.4	
Peak Pulse Power		P_{PP} (2)	33	W
Peak Pulse Current		I_{PP} (2)	2.5	A
Lead Solder Temperature − Maximum (10 Second Duration)		T_L	260	℃
Operation Junction and Storage Temperature Range		T_J,T_{stg}	-55 ~ +150	℃

Note:(1) Device stressed with ten non-repetitive ESD pulses, Per channel(I/O to GND).

(2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

ESD Standards Compliance

IEC61000-4-2 Standard

Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0～249
1A 1B 1C	250～499 500～999 1000～1999
2	2000～3999
3A 3B	4000～7999 8000～15999

Fig.1 ESD pulse waveform according to IEC61000-4-2

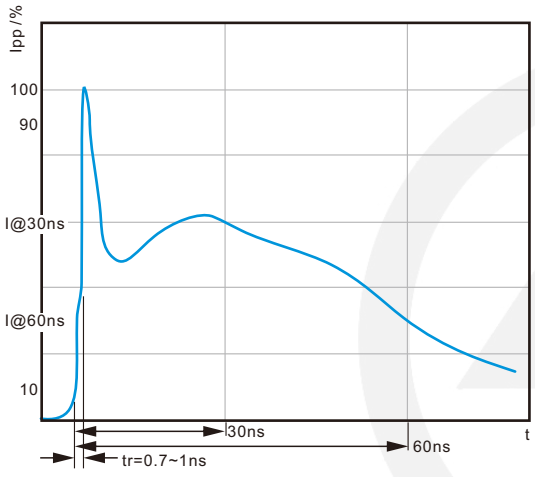
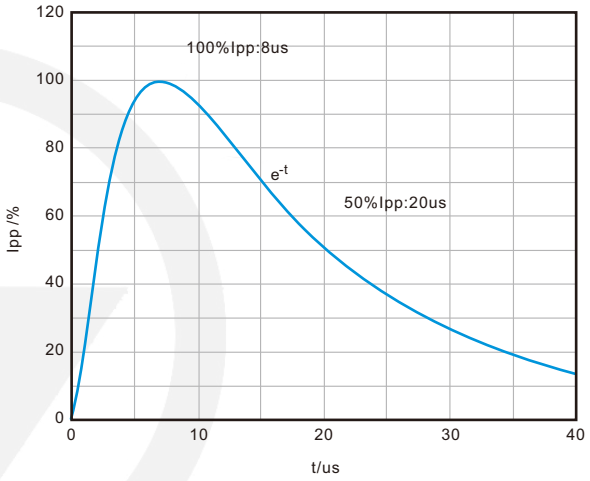
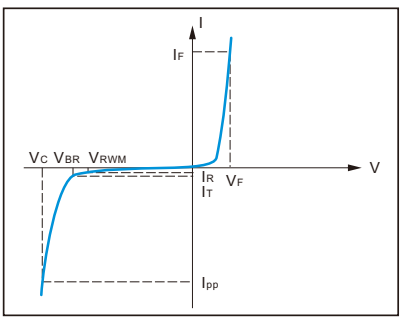


Fig.2 8/20μs pulse waveform according to IEC 61000-4-5



Electrical Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage
V_F	Forward Voltage@ I_F
I_F	Forward Current



V-I characteristics for a uni-directional TVS

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Per Diode						
Reverse stand off voltage	V_{RWM} (1)				5	V
Breakdown voltage	$V_{(BR)}$	I_T=1mA	6.2		7.2	V
Reverse leakage current	I_R	V_{RWM}=5V			1.0	μA
Forward voltage	V_F	I_F=10mA			0.9	V
Clamping voltage	V_C (2)	I_{PP}=2.5A			13	V
Junction capacitance	C_J	V_R=0V,f=1MHz		10	12	pF

(1) Other voltages available upon request.

(2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Characteristic Curves

Fig.1 Forward Characteristics

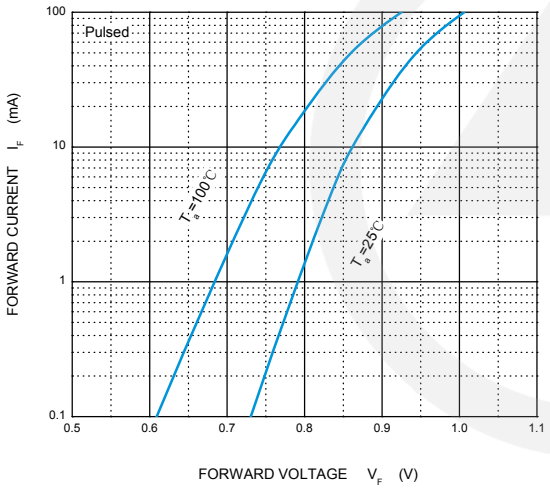


Fig.2 Reverse Characteristics

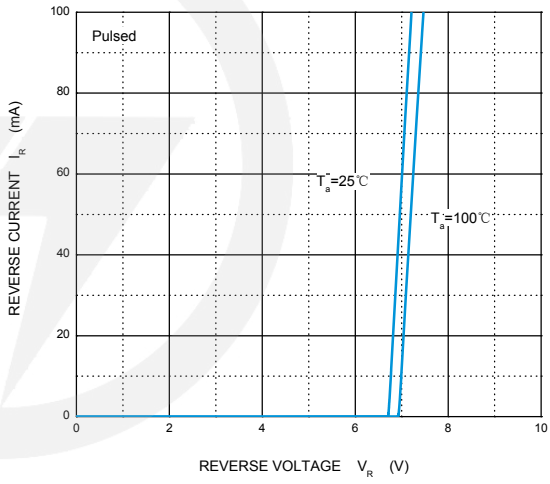


Fig.3 V_C vs I_{PP}

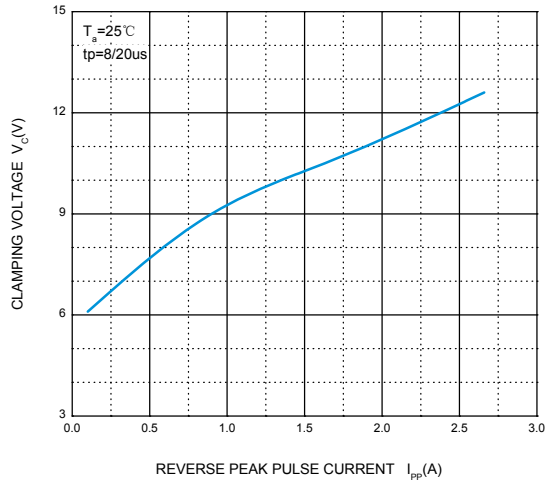
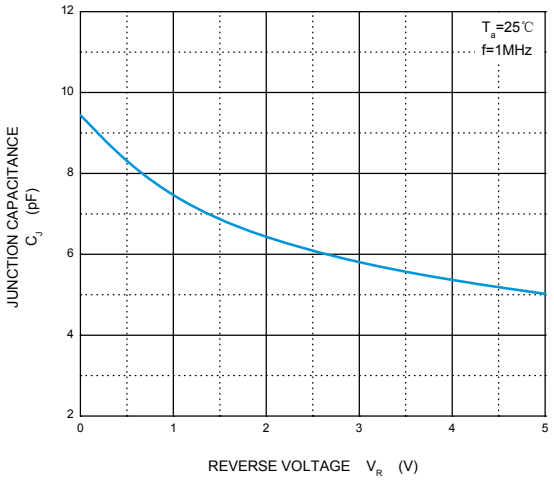
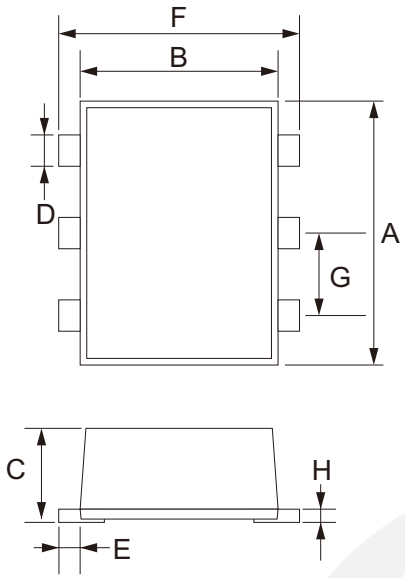


Fig.4 Capacitance Characteristics



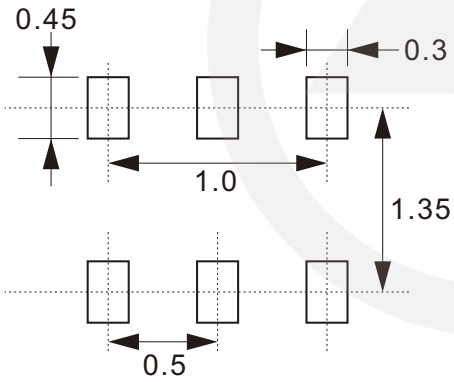
SOT-563 Packeage Outline



Unit: mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	1.50	1.70
B	1.10	1.30
C	0.50	0.60
D	0.17	0.27
E	0.10	0.30
F	1.50	1.70
G	0.50 TYP.	
H	0.08	0.18

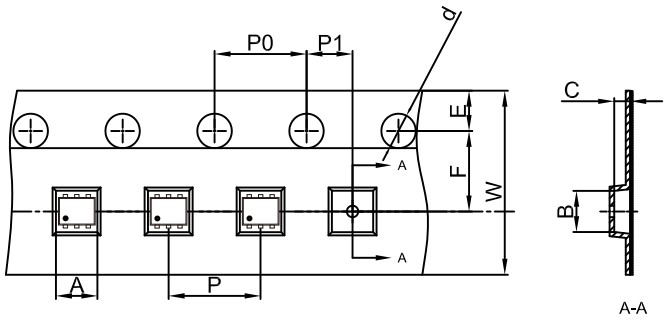
SOT-563 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm
3.The pad layout is for reference purpose only.

Carrier Tape Dimensions

Unit：mm

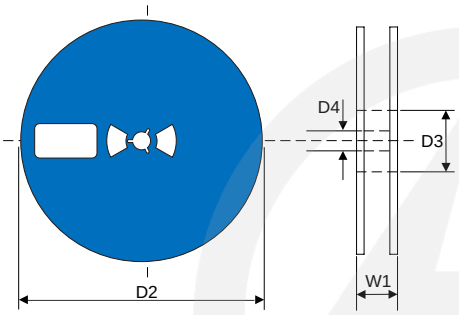


Symbol	Spec	Symbol	Spec
A	1.78	F	3.50
B	1.78	P0	4.00
C	0.69	P	4.00
d	Ø1.50	P1	2.00
E	1.75	W	8.00

Reel Dimensions

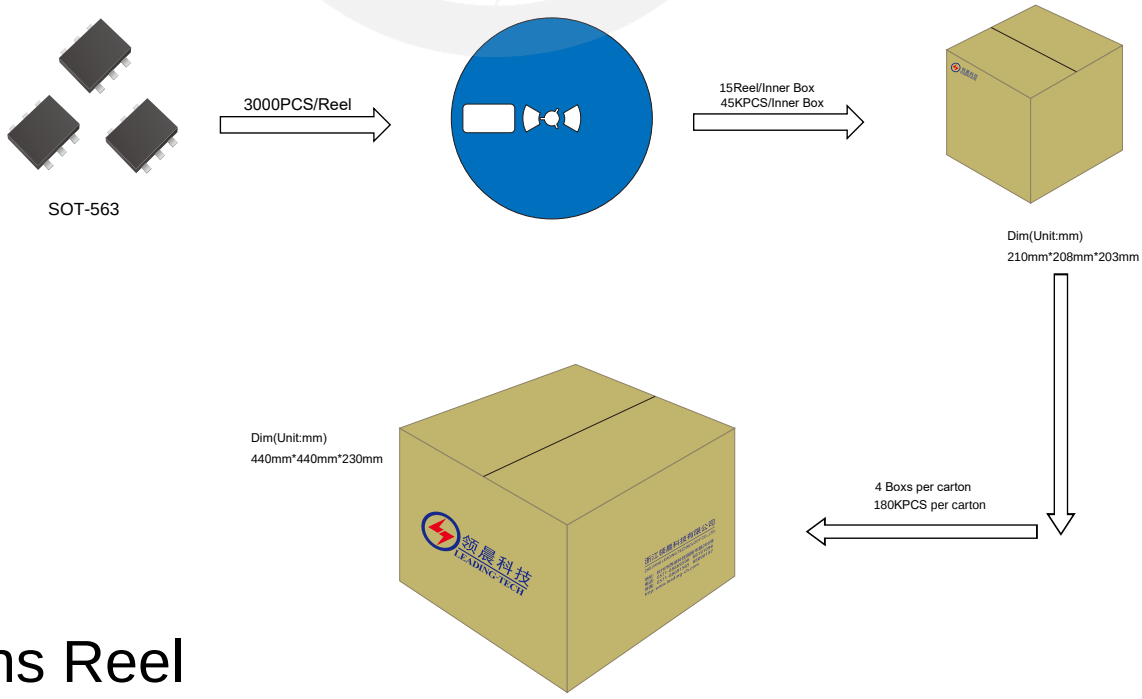
Unit：mm

7” Reel



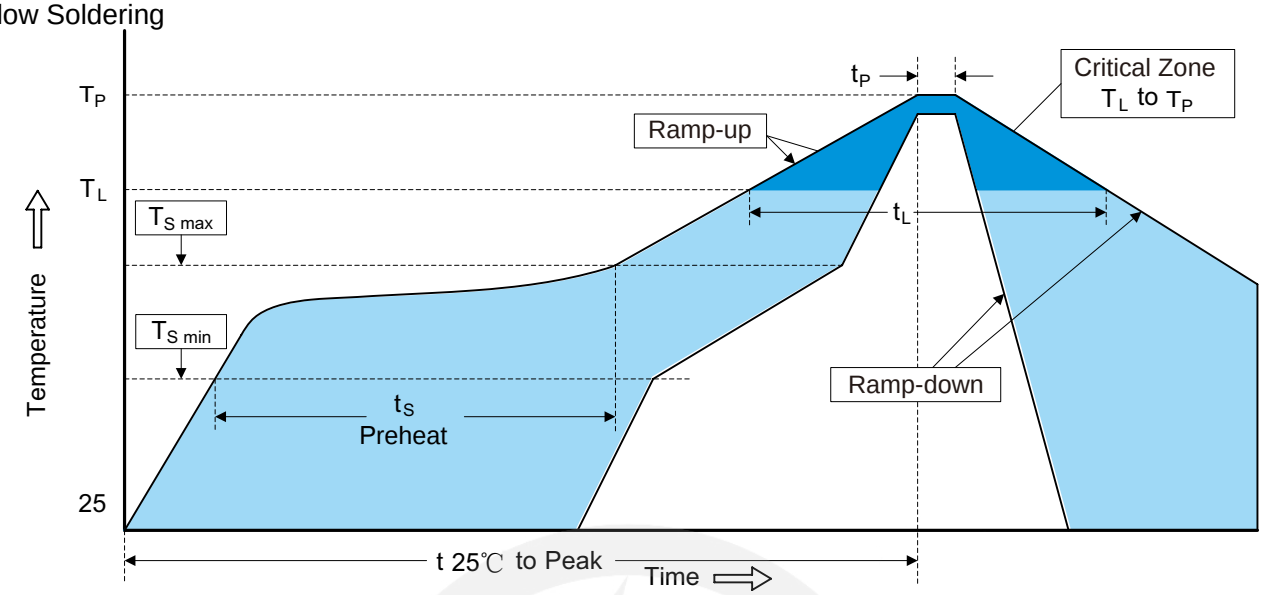
D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

Packaging



Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.5.12	2024.5.12	3.0	New File	/	Ding	